Amendments to the Drawings

Attachments following last page of this Amendment:

Replacement Sheets pages 1-6 (six pages)

REMARKS

Applicant has received the Office Action mailed March 12, 2007. Claims 3, 8, 9, 12, 15, 22, and 26-29 have been canceled. Applicant has amended claims 1, 6, 11, 25 and 30. Claims 1-2, 4-7, 10-11, 13-14, 16-21, 23-25, and 30-31 are pending of which claims 1, 11, 20, 30 and 31 are independent. Applicant requests reconsideration of the pending claims in view of the amendment and the following remarks.

Comments on an Information Disclosure Statement

The Examiner commented on the specification as follows:

> 2.   The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. See page 9, line 23 to page 10, line 22.

Submitted herewith is an Information Disclosure Statement with some of the references listed in the specification. Applicant requests that the references submitted in the Information Disclosure Statement be considered.

Objection to the Drawings

The Examiner objected to the drawings as follows:

> 3.   Figures 2-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicant has formalized the drawings and amended them as required. No new matter has been added. A full set of substitute drawings is submitted herewith. Applicant requests that the objection to the drawings be withdrawn.

Objection to the Specification

The Examiner objected to the specification as follows:

> **4.   The disclosure is objected to because of the following informalities:**
>
> **At page 7, line 12, one of the words "with" should be deleted.**
>
> **At page 8, line 19, there is no space between the words "gain" and "bandwidth".**
>
> **At page 9, lines 16 and 20, the application Nos. 09/772,110 and 09/730,697 need to be updated, now U.S. Patent Nos. 6,982,945 and 6,829,289, respectively.**
>
> **At page 11, lines 6 and 10, "a k" and "Ax(n)" to be corrected.**
>
> **At page 7, "IIR" appears to be "FIR".**
>
> **At page 13, lines 19 and 20, "b_i(n)have" and "k l" need to be corrected.**
>
> **At page 14, lines 21 and 22, only half brackets " [" are shown in the top and bottom of the equation.**
>
> **At page 15, lines 1, 6, and 14, "prediction", "e(n), or" and "a l" need to be corrected.**
>
> **At page 17, line 1, "μm" should be "μ_m,".**
>
> **At page 1, lines 1 and 23, "l==O" and "2" should be "l=O1' and "l", respectively.**
>
> **At page 22, line l, the application No. 091738,010 should be updated, now, U.S. Patent No. 7,142,536.**
>
> **Appropriate correction is required.**

Applicant has amended the specification in a manner that is believed to address the objections. No new matter has been introduced, as support for each amendment may be generally found in the context of the amendment itself. Applicant requests that the objections be withdrawn.

Objection to the Claims

The Examiner objected to the claims as follow:

> 6.   Claims 11-30 are objected to because of the following informalities:
> In claim 11, lines 1 and 3, "filtering output periodic" and "filters output periodic" should be "filtering output interference periodic" and "filters output said interference periodic", respectively.
>
> In line 2 of claims 16-18, "said periodic" should be "said interference periodic".
>
> The dependent claims 13-15 and 19 are dependent upon claim 11.
>
> In claim 20, lines 1 and 8, "filtering periodic" and "signal;" should be "filtering interference periodic" and "signal; and1', respectively.
>
> In line 2 of claims 23 and 23, "periodic or " should be "interference periodic or".
>
> The dependent claims 21 and 25 are dependent upon claim 20.
>
> In claim 27, lines 4, 5 and 6, "periodic or", "said periodic signals" and "said periodic signal;" should be "interference periodic or", "said interference periodic or quasic-periodic signals" and "said interference periodic or quasic-periodic signals; and", respectively.
>
> The dependent claim 28 is dependent upon claim 20.
>
> In claim 30, lines 1, 9 and 10, "filtering periodic", "coefficients;" and "in signal;" should be "filtering interference periodic", "coefficients; and" and "for signal", respectively.
>
> Appropriate correction is required.

To the extent that the "objections" are understood, they are traversed. It appears that the Examiner is requiring the Applicant to add a new word ("interference") to various claims. The basis for this requirement is not clear. In particular, the claims in their current format do not require this additional word for antecedent basis purposes or for grammatical reasons. Accordingly, the objection is not appropriate, and Applicant requests that it be withdrawn.

Claim Rejections—35 U.S.C. § 112

The Examiner rejected claims 6, 15, 18 and 25 under 35 U.S.C. § 112 as follows:

> 8.   Claims 6 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled

in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 6 and 18 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. For example, the specification fails to describe that a spread spectrum receiver further comprising a modulated CDMA receiver as recited in claim 6 and a filter used to filter out an interference periodic or quasic-periodic signals in a standard modulated CDMA system as recited in claim 18.

10.   Claims 15 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim subject matter of claim 15 lacks connection or cooperation with precedent claim 11.

The claim subject matter of claim 25 is not understood since "a signal" can't comprise "a modulated CDMA.

In claims 6 and 18, Applicant has deleted the word "modulated." CDMA systems and receivers are clearly described in the specification. See, for example, page 8, line 13, to page 9, line 21; FIG. 1; and page 21, lines 16-18.

Claim 15 has been canceled without prejudice.

Claim 25 has been amended to recite a "CDMA signal."

Applicant requests that the § 112 rejections be withdrawn.

Claim Rejections—35 U.S.C. § 103

The Examiner rejected various claims under 35 U.S.C. § 103 as follows:

14.   Claims 1-2,4-7, 10, 20-21, 23-25, 27-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the conventional art described in the instant application in view of Li et al.

Regarding claims 1-2, 10, 20-21, 27-28 and 30, the instant application clearly describes that in the prior art, the k, terms are used to model speech. However, note that there are resulting error terms, e(n)=fp(n) and bp(n), which are also generated as an output from the LPC filter. In the prior art, these error terms are simply discarded and not used in any way. However, in the present invention, the error term is kept whereas the linear predictive terms are discarded. In other words, the e(n)=fp(n) and bp(n) signals are passed on through the receiver, while the k, signal is discarded. See page, 19, lines 10-18. Therefore, all the claim subject

matter recited in claims 1, 20, 27 and 30 are well known in the art, except, the predictive error is being used for further processing.

As described in paragraph 12, above, Li's RLS lattice adaptive filter shown in Fig. 6 is implemented in the detection receiver of Fig. 4 for performing estimated values of channel fading coefficients, forward and backward prediction errors. Wherein the prediction errors are further used for processing, for example, by the Viterbi decoding circuit 205 and the QPSK demodulation circuit 206 of the detection receiver shown in Fig. 4.

Therefore, it would have been obvious to one of ordinary skill in the art that the prediction error generated by a prediction filter is being used for further processing in a prior art receiver as taught by Li by a Viterbi decoder and a QPSK demodulator in a CDMA detection receiver in order to further extract the interference of the transmitted data.

Regarding claims 6 and 25, the detection receiver is a CDMA receiver.

Regarding claims 4-5, 7, and 23-24, the claim subject matter either well known in the art or used in a standard in compliance with IEEE 802.1 1 (b), as described in the background of the invention of the instant application.

The Examiner's rejection of independent claim 20 is procedurally inappropriate. In particular, the Examiner did not establish a prima facie § 103 rejection of claim 20; rather, the Examiner rejected independent claim 1, 20 and 30 on the same basis, even though the language in these claims is different. More particularly, prior to the current amendments, claims 1 and 30 respectively recited, *inter alia*, "wherein said error coefficients are used for signal processing" and "using said error coefficients in signal processing." In contrast, independent claim 20 recites "processing said error coefficients to retrieve information contained in the spread spectrum signal." In rejecting claims 1, 20 and 30, the Examiner merely referred to instances in Li where error coefficients were described in the context of determining or refining the prediction coefficients. The Examiner did not indicate where Li discloses or suggests retrieving "information contained in the spread spectrum signal," as recited in claim 20 Accordingly, the § 103 rejection of claim 20 is procedurally inappropriate and should be withdrawn.

Procedure aside, Li does not substantively disclose or suggest what is recited by claim 20. In particular, as indicated above, Li describes a system in which error terms are used only to refine predictive coefficients. Such a system teaches away from using the error terms to retrieve

information contained in the signal, as recited in Applicant's claim 20. Accordingly, claim 20 is patentable over Li, and Applicant requests that the § 103 rejection of claim 20 be withdrawn.

Claims 27-28 have been canceled without prejudice.

Independent claims 1 and 30 have been amended so as to recite similar language with respect to the error coefficients as claim 20. Support for the amendments can be found in claim 20, and in the specification, including, for example, at page 21, lines 3-12. Accordingly, independent claims 1 and 30 are patentable for at least those reasons presented above with respect to claim 20. Applicant requests that the § 103 rejections be withdrawn of independent claims 1, 20 and 30, and corresponding dependent claims 2, 4-7, 10, 21, and 23-25.

Claim Rejections—35 U.S.C. § 102

The Examiner rejected various claims under § 102(e) as follows:

12. Claims 11 and 13-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. U.S. Publication No. 200610062284 A1 (hereinafter "Li").

Li discloses a method and apparatus for estimating flat fading channel in CDMA communication system, the method is implemented by using an adaptive forward prediction technique based on lattice filter and maximum likelihood technique of Viterbi algorithm.

Fig. 4 shows a block diagram of a detection receiver which employs adaptive lattice filter-based adaptive forward prediction technique and per-survivor processing principle based technique and maximum likelihood detection technique of Viterbi algorithm. See paragraphs LO0351 and [0036].

Fig. 6 shows a block diagram of an RLS lattice adaptive filter for performing estimated values of channel fading coefficients, forward and backward prediction errors. See paragraphs [0047] and [0050].

Regarding claim 11, in Fig. 6, the RLS lattice adaptive filter filters out interferences signals corresponding to predictive coefficients and outputs prediction errors which are used for signal processing, for example, by the Viterbi decoding circuit 205 and the QPSK demodulation circuit 206 of the detection receiver shown in Fig. 4.

Regarding claim 13, the detection receiver is a CDMA receiver.

Regarding claim 18, the RLS lattice adaptive filter is used in a CDMA receiver system.

Regarding claims 15-16 and 18-1 9, the claim subject matter either well known in the art or used in a standard in compliance with IEEE 802.1 1 (b), as described in the background of the invention of the instant application.

Claim 11 has been amended to recite similar language as independent claim 20, which was discussed above. As discussed with reference to claim 20, Li does not disclose or suggest using error information from a linear predictive coding filter to recover an information signal. Rather, Li describes using error information to refine predictive coefficients. Accordingly, Li does anticipate amended claim 11.

Nor does Li render obvious claim 11. As indicated above, Li's description of using error terms only to refine predictive coefficients actually teaches away from using the error terms to recover an information signal. Accordingly, claim 11 is patentable over Li, and Applicant requests that the § 103 rejections be withdrawn of independent claim 11 and of the corresponding dependent claims 13, 14 and 16-19.

New Claim

New claim 31 is presented herein. New claim 31 is fully supported by claim 20, and by the specification, for example at page 21, lines 3-12. Accordingly, no new matter has been added.

Applicant respectfully submits that new claim 31 is patentable for at least the reasons presented above with respect to claim 20. Applicant requests consideration of new claim 31 and allowance of the same.

Conclusion

Applicant respectfully submits that pending 1-2, 4-7, 10-11, 13-14, 16-21, 23-25, and 30-31 are in condition for allowance and request that the Examiner allow them.

It is believed that all of the pending issues have been addressed. In the event that the Examiner determines that any pending issue has been inadvertently overlooked, or to the extend that a telephone interview would expedite prosecution, the Examiner is invited to contact the undersigned by telephone. The absence of a reply to a specific rejection, issue or comment does
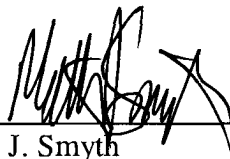
not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to this amendment.

This response is being filed with an Information Disclosure Statement, substitute drawings, a Request for Two-Month Extension of Time, and the requisite fees.

Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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